



## SECTION 603

### WATER LINE INSTALLATION

**603.1 Description.** This work shall consist of furnishing material for, and installing water lines and appurtenances as shown on the plans or as directed by the engineer.

**603.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

| Item   | Section/Specification                      |
|--|--|
| Concrete   | 501  |
| Reinforcing Steel for Concrete                               | 1036                                       |
| Ductile Iron Pipe, 3 to 48 inch<br>(75 to 1200 mm) diameters | AWWA C151                                  |
| Ductile Iron and Gray-Iron Fittings                          | AWWA C110                                  |
| Rubber Gasket Joints   | AWWA C111                                  |
| Cement Mortar Lining   | AWWA C104                                  |
| Gate Valves  | AWWA C500                                  |
| Rubber-Seated Butterfly Valves                               | AWWA C504                                  |
| Dry-Barrel Fire Hydrants                                     | AWWA C502                                  |
| Seamless Copper Water Tube                                   | ASTM B 88, Type K<br>(ASTM B 88 M, Type A) |

**603.2.1 Service Connections.** Service connections shall be completed in accordance with AWWA, ANSI, ASTM or the local utility code, as applicable.

**603.2.2 Material Acceptance.** The contractor shall furnish one copy of each manufacturers' certification that all specified tests have been conducted and that the material and fittings are in accordance with these specifications.

**603.3 Construction Requirements.** Service shall not be interrupted without approval from the engineer and the proper utility official. The contractor shall arrange the work to minimize service interruptions. Prior notice of at least 24 hours shall be given to the proper utility official and the engineer before any main is shut off. In no case shall a valve or hydrant be opened or shut without proper authorization.

**603.3.1 Construction and Installation.** Construction and installation shall be in accordance with AWWA, ANSI, ASTM, or local utility code, as applicable.

**603.3.2 Inspection and Acceptance.** Inspection and acceptance of the completed installation, prior to backfilling, shall be the responsibility of the utility owner.

**603.3.3 Appurtenance Installation.** Appurtenances shall be located as shown on the plans or as directed by the engineer.

**603.3.4 Abandoned Water Mains.** Abandoned water mains shall be plugged and sealed watertight by means of a ductile iron plug or cap, or by covering the end of the pipe with concrete of any mixture specified in [Sec 501](#). The concrete cover shall provide a minimum of 6 inches (150 mm) cover around the outside of the pipe and shall extend a minimum of

6 inches (150 mm) in each direction from the end of the pipe. All existing valves that will have pressure on one side and an abandoned main on the other side shall be closed with a ductile iron plug and blocked with reaction backing on the side where the main has been abandoned. A portion of the abandoned pipe shall be removed to allow clearance for plugging and backing.

**603.3.5 Encasement.** Encasement, if required, shall be as specified in the contract.

**603.3.6 Backfilling.** Material placed around and 12 inches (300 mm) above the top of the pipe shall be free of cinders, ashes, refuse, boulders, rocks or other unsuitable material. The remainder of the trench shall be backfilled in accordance with [Sec 726](#).

**603.3.7 Disinfection.** The completed water line installation shall be disinfected in accordance with the provisions of MDNR.

#### **603.4 Method of Measurement.**

**603.4.1 Pipe.** Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, measurement of pipe, complete in place, including joint accessories, fittings and service connections greater than 2 inches (50 mm) inside diameter, will be made to the nearest linear foot (0.5 m) along the geometrical center of the pipe with no exceptions for valves or fittings. The revision or correction will be computed and added to or deducted from the contract quantity.

**603.4.2 Rock.** Rock encountered in trenching and classified as Class 3 Excavation in Rock in accordance with [Sec 203](#) will be measured to the nearest cubic yard ( $m^3$ ). Measurement of yardage to be paid for as Class 3 Excavation in Rock will be a width 18 inches (450 mm) greater than the inside diameter of the pipe and a depth from the surface of the rock as determined by the engineer to a plane 6 inches (150 mm) below the outside bottom of the pipe or to the bottom of the rock, whichever is higher. Any Class 3 Excavation in Rock performed prior to the establishment of the lines of demarcation and notification to the engineer will not be measured or paid for.

**603.4.3 Service Connections.** Measurement of relocating service connections, 2 inches (50 mm) inside diameter or less, will be made per each.

**603.4.4 Encasement.** Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, measurement of encasement conduit will be made to the nearest linear foot (0.5 m) along the geometrical center of the conduit. Contract quantities will be used for final payment except as hereinafter provided. Measurement of reinforced concrete encasement, including reinforcing steel, will be made to the nearest 1/10 cubic yard ( $0.1 m^3$ ). The revision or correction will be computed and added to or deducted from the contract quantity.

**603.5 Basis of Payment.** Accepted water line will be paid for at the contract unit price for each of the pay items included in the contract. No direct payment will be made for excavation or backfill except in accordance with [Secs 206.6.3.3](#) and [603.4.2](#). No direct payment will be made for fittings regardless of the type of fittings used. Accessories required for fittings will be considered part of the fitting. In relocating service connections 2 inches (50 mm) inside diameter or less, no direct payment will be made for the pipe or fittings. No direct payment will be made for incidental construction items including, but not limited to, reaction backing, plugging and sealing of abandoned water mains, and for disinfecting of water lines.